Service Manual

DDR-3/RD-6

DAB RECEIVER IN WOODEN CABINET

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SPECIFICATION

FM. ELECTRICAL PERFORMANCE

Model: DDR-3(RD-6)	Brand:	Temp: 25℃	R.H.: 75%	Date:

Test Item	Condition			Value		Test No.		Unit
	Input	Output	Freq.	Nom.	Lim.	1.	2.	
Tuning Range		S/N=6dB	Min	87.5				MHz
			Max	108				
Intermediate Frequency		S/N=6dB		38.912	±0.03			MHz
Maximum Sensitivity		S/N=6dB	90MHz 98MHz 106MHz	3 3 3	9 9 9			DBu EMF
Usable Sensitivity		S/N=30dB	90MHz 98MHz 106MHz	9 9 9	15 15 15			DBu EMF
Image Rejection		S/N=6dB	106MHz	24	18			dB
I.F. Rejection		S/N=6dB	90MHz		50			dB
3db Limiting	80dBu		98MHz	12	18			DBu EMF
Min. Output				1.5	3.0			mV rms
Auto. Scan. Stop. Sens.				12	18			DBu EMF
S/N (200mV) 75kHz/Dev.				56	46			dB
Stereo Separation 1KHz	60dBu	R. O.		26	20			dB
Current Consumption 8.2V				320	340			mA
Current Consumption 7V				130	150			mA
Am. Suppression (1mV)				32	26			dB
Spurious Rejection		S/N=6dB			40			dB
Audio Fidelity DBB Off 75kHz (-3dB W/pre emphasis)				50	100			Hz
				15K	12K			Hz
Output Power (75KHz Dev.) TONE MAX,DBB ON		10%T.H.D.		4500	3800			mW
T. H. D. (75KHz dev.)				1	3			%
Over Load Capacity		10%T. H.D.		100	90			dBu
Tone Max DBB Off	10KHz			12	10			dB

Supply Voltage: AC110V / 60Hz	R.O.: 50mW	Load: 8 Ohms	Modulation: 400Hz Modulation 22.5KHz Deviation

Remark:AC IN Accoding Area TONE AT CENTER DBB OFF	Approved by	Released/Tested by
( )The head of product ( )Client Spot Check ( )Finished Product ( )Routine Spot Check ( )Semi-finished Product ( )Engineering Modify ( )New Model ( )Business Sample		

DAB(BAND Ⅲ) ELECTRICAL PERFORMANCE

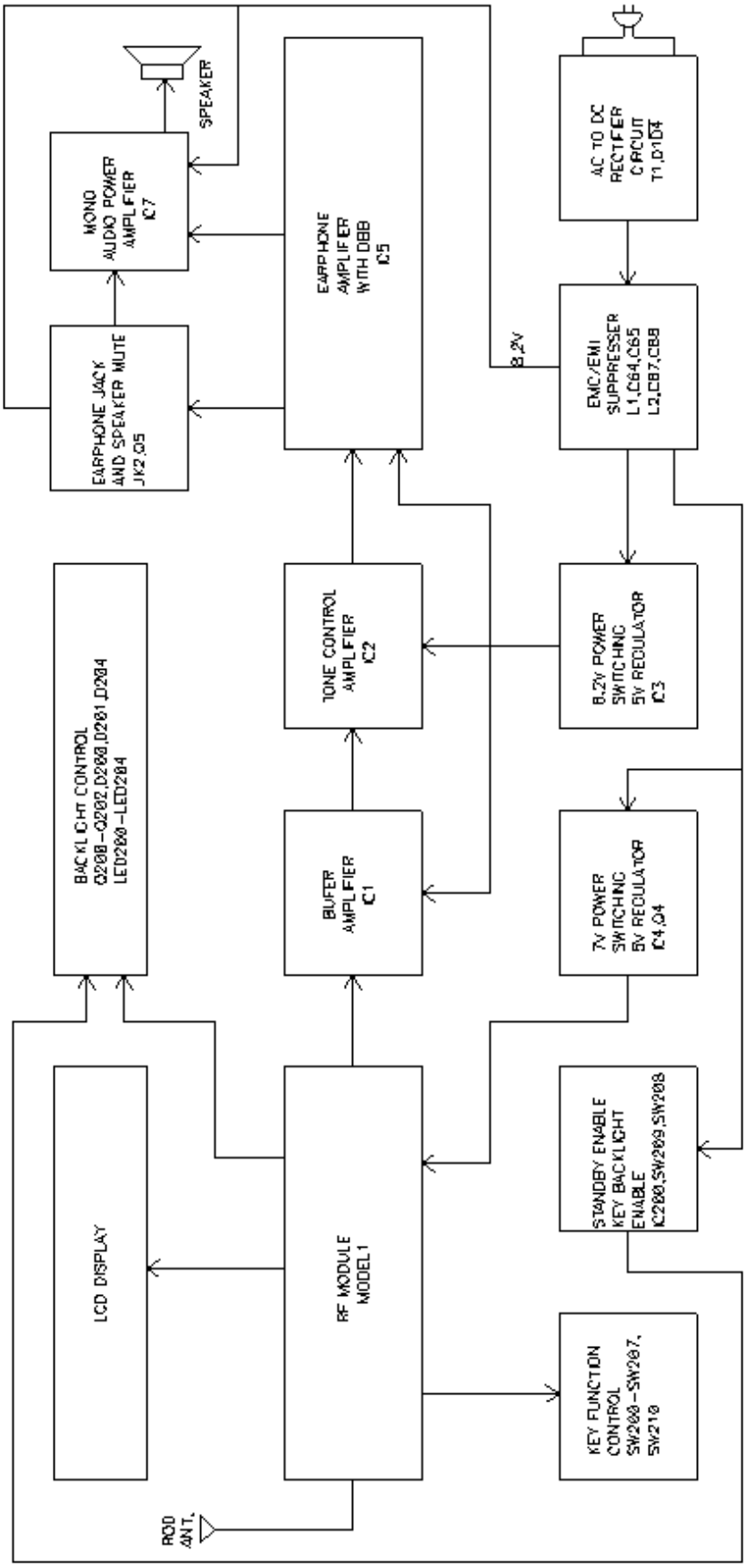
Model: DR-3(RD-6)	Brand:	Temp: 25℃	R.H.:75 %	Date:

Test Item	Condition		CH	Limit	Typical	Test no.		Unit
						1.	2.	
RF Freq. Range		Min	5A					CH
		Max	13F					CH
Adjacent Channel Selectivity	Fc : -70 dBm (Wanted channel) Fi : ≧ -38 dBm (Unwanted channel) (Measurement to EN50248)		10A	32	35			dB
Far-off Selectivity	Fc : -70 dBm (Wanted channel) Fi : ≧ -25 dBm FM 75Khz/dev. Fc ±5MHz (Unwanted channel) (Measurement to EN50248)		10A	45	55			dB
Sensitivity	Without pop noise		5A	-94	-97			dBm
			10A	-95	-98			dBm
			12B	-95	-98			dBm
			13F	-94	-97			dBm
S/N Ratio	Without pop noise		10A	54	60			dB
Max. input Signal : Without pop noise			10A	-10	0			dBm
Acquisition Selectivity	(Measurement to EN50248)		5A	-98	-102			dBm
			10A	-99	-102			dBm
			12B	-99	-102			dBm
			13F	-98	-102			dBm
Supply Voltage: DC : 6V AC : 110 V/ 60 Hz	R.O. : 50mW		Load: 8 Ohm			Modulation :1kHz		

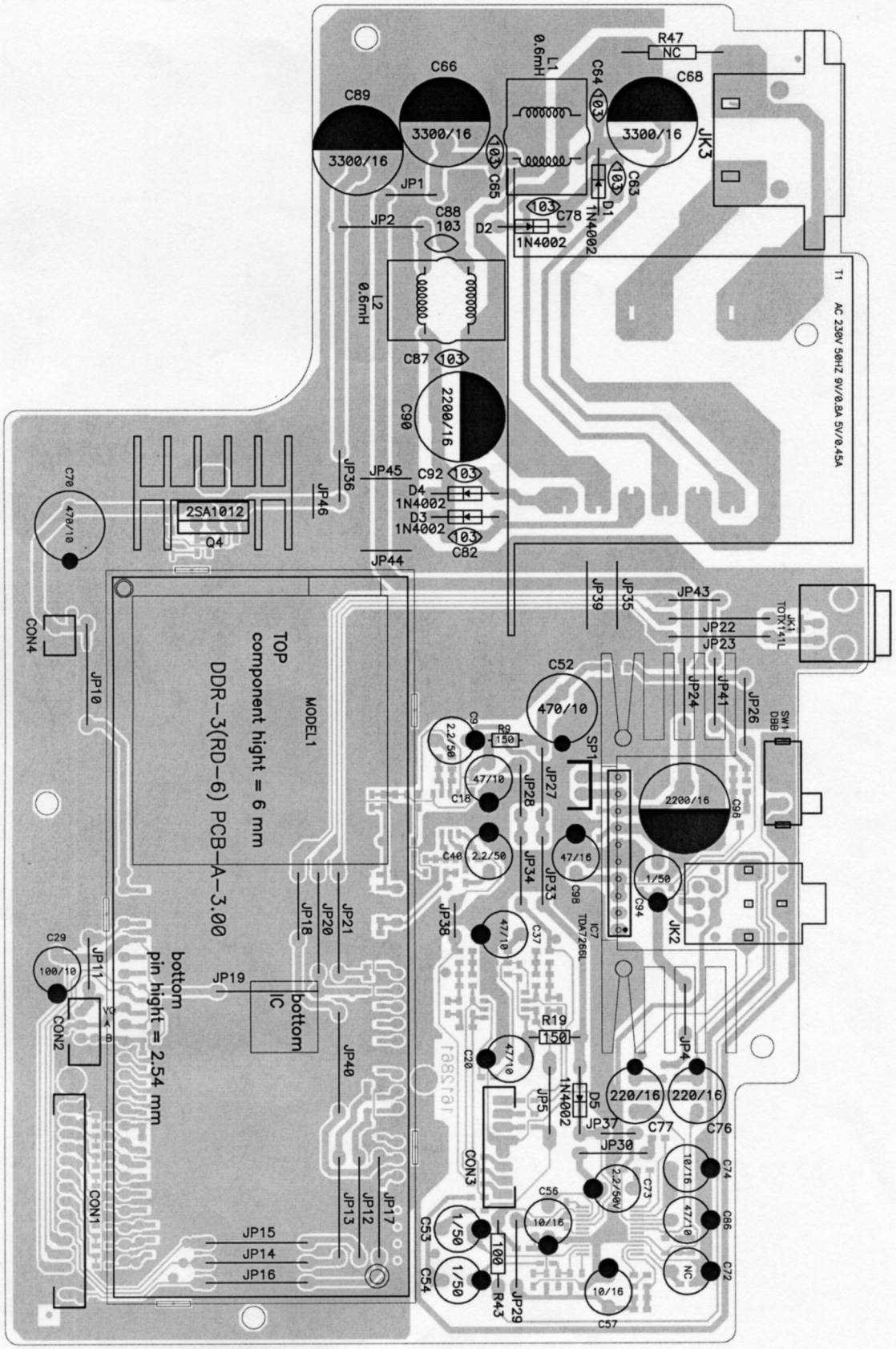
Channel	Freq.(MHz)	Channel	Freq.(MHz)	Channel	Freq.(MHz)
5A	174.928	10A	209.936	12B	225.648
13F	239.200				

Remark:AC IN Accoding Area TONE AT CENTER DBB OFF	Approved by	Released/Tested by
( )The head of product ( )Client Spot Check ( )Finished Product ( )Routine Spot Check ( )Semi-finished Product ( )Engineering Modify ( )New Model ( )Business Sample		

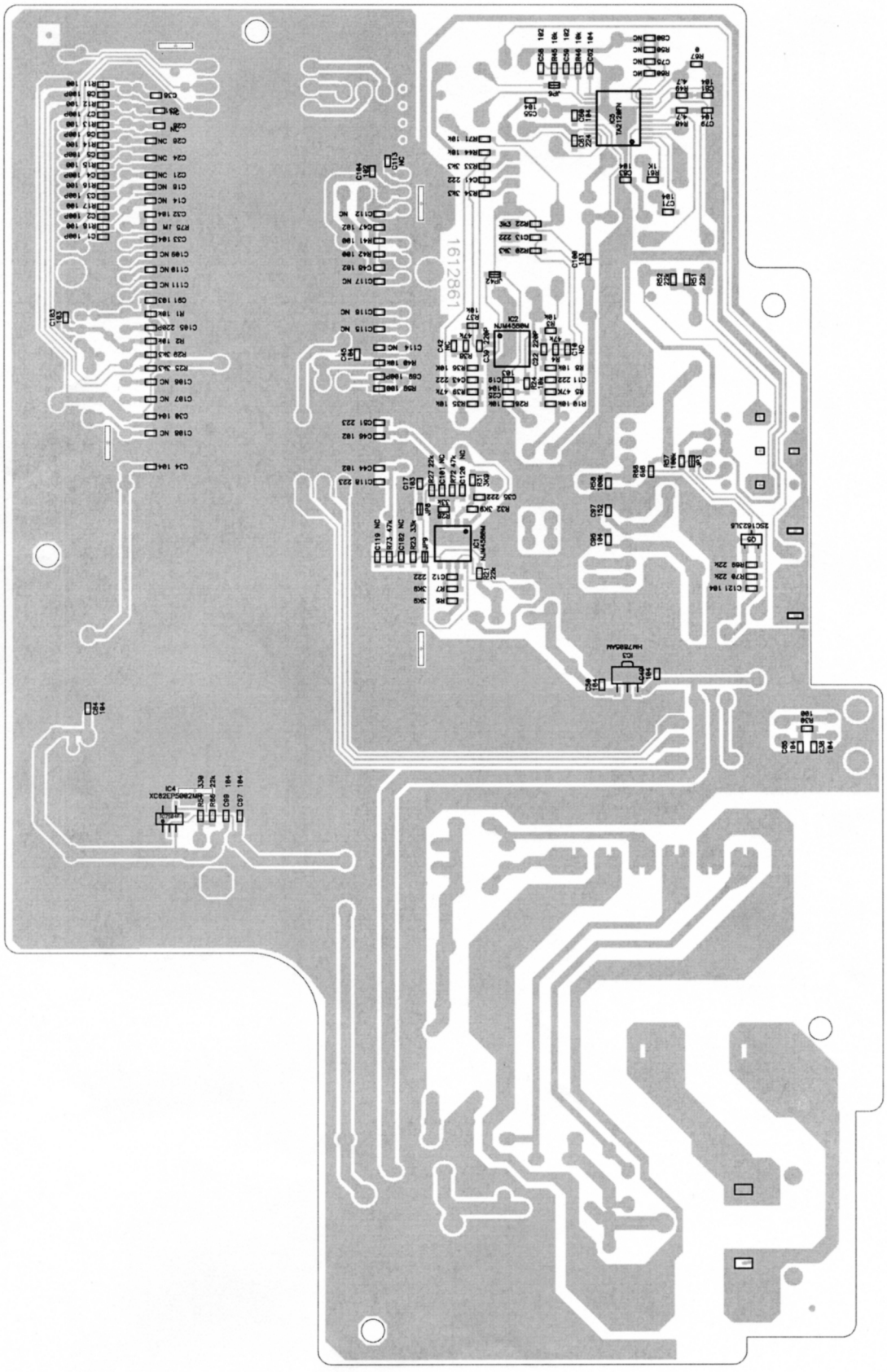
BLOCK DIAGRAM


SPEAKER
MONO AUDIO POWER AMPLIFIER IC7
EARPHONE JACK AND SPEAKER MUTE JK2,05
EARPHONE AMPLIFIER WITH OBB IC5
AC TO DC RECTIFIER CIRCUIT T1,D104
8.2V
EMC/EMI SUPPRESSER L1,C64,C65 L2,C87,C88
BACKLIGHT CONTROL Q208~Q202,D208,D281,D284 LED280~LED284
TONE CONTROL AMPLIFIER IC2
8.2V POWER SWITCHING 5V REGULATOR IC3
BUFER AMPLIFIER IC1
7V POWER SWITCHING 5V REGULATOR IC4,04
LCD DISPLAY
RF MODULE MODEL1
STANDBY ENABLE KEY BACKLIGHT ENABLE IC280,SW209,SW208
KEY FUNCTION CONTROL SW200~SW207, SW210
ROD ANT.

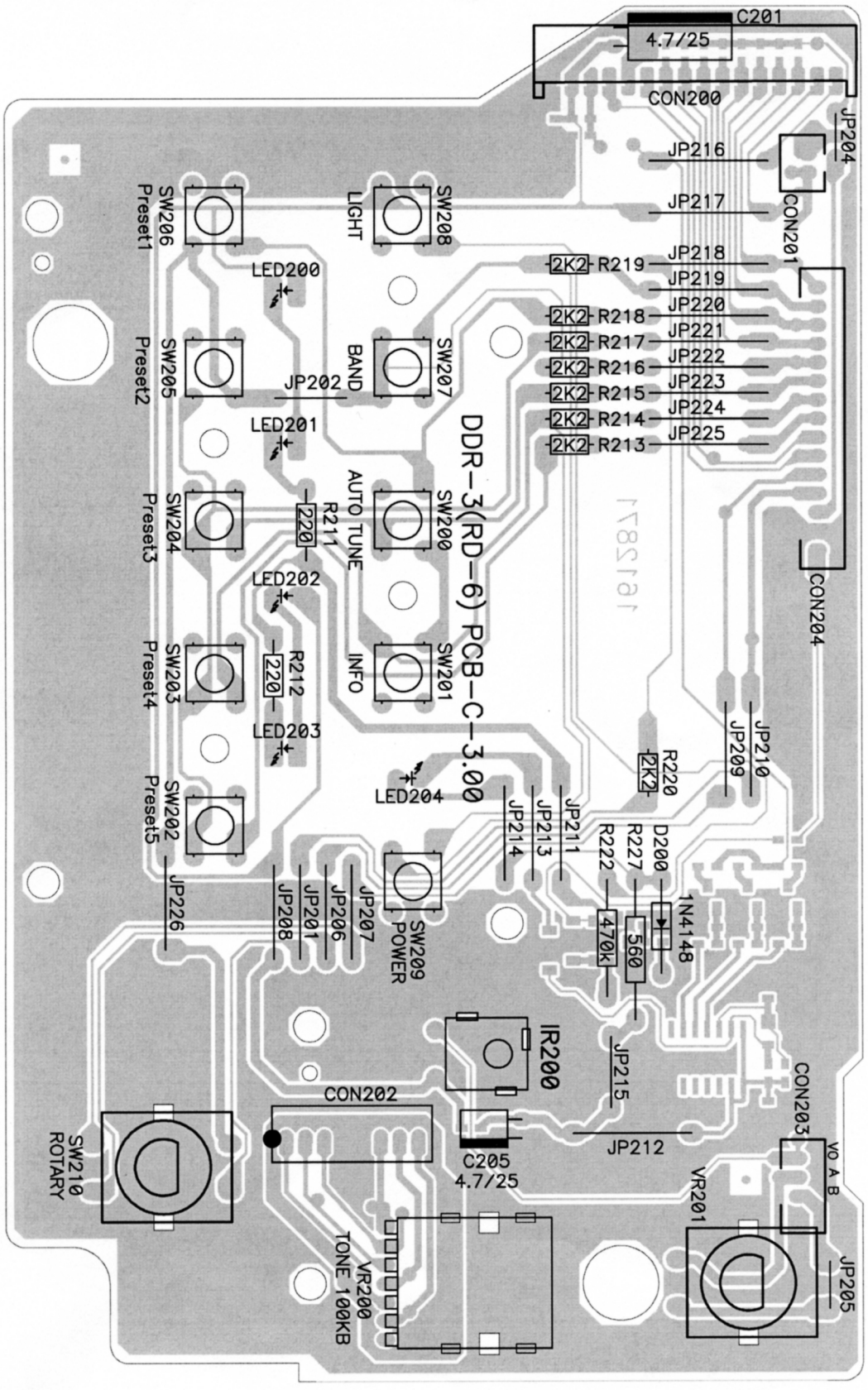
MAIN PCB TOP VIEW



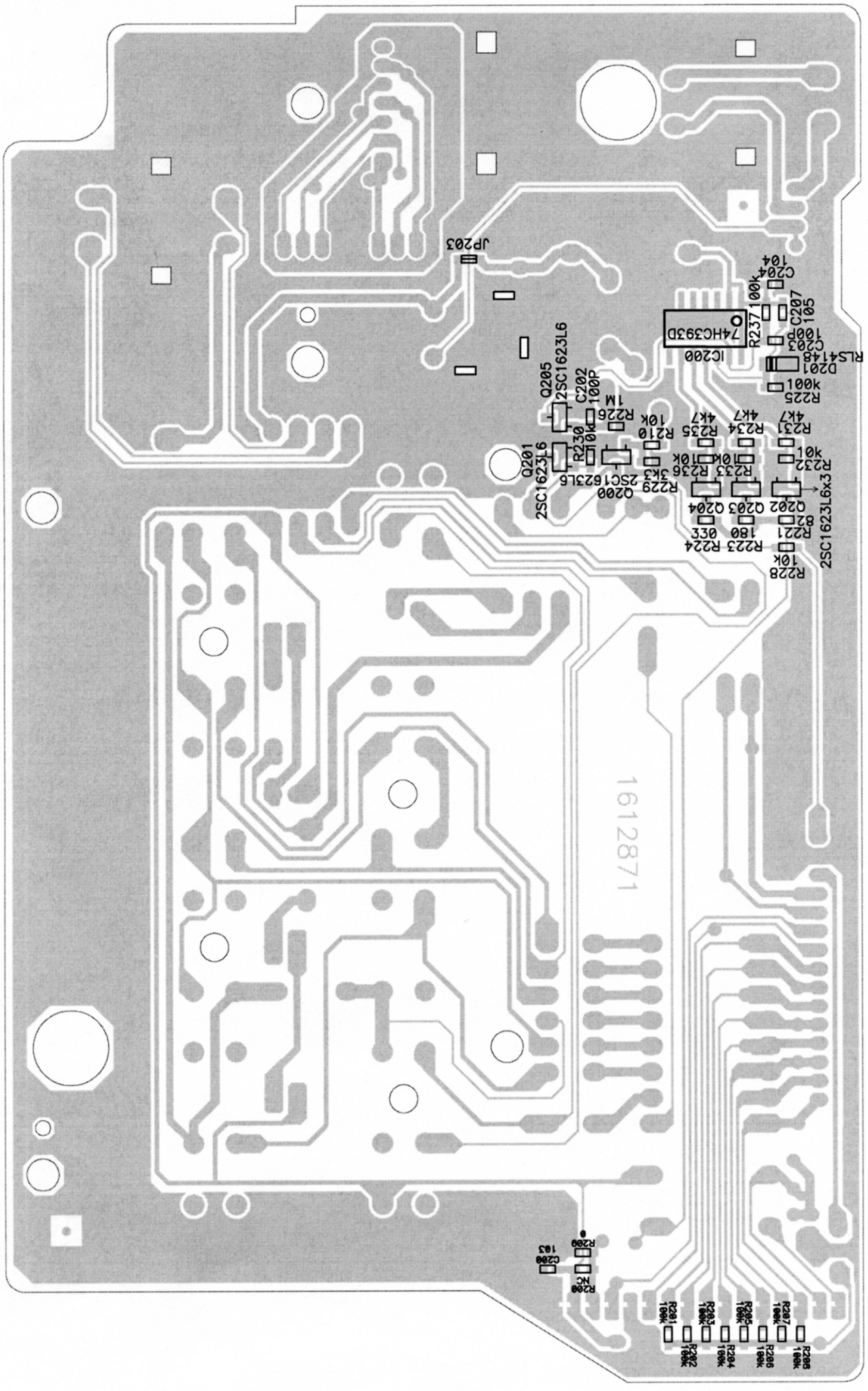
MAIN PCB BOTTOM VIEW



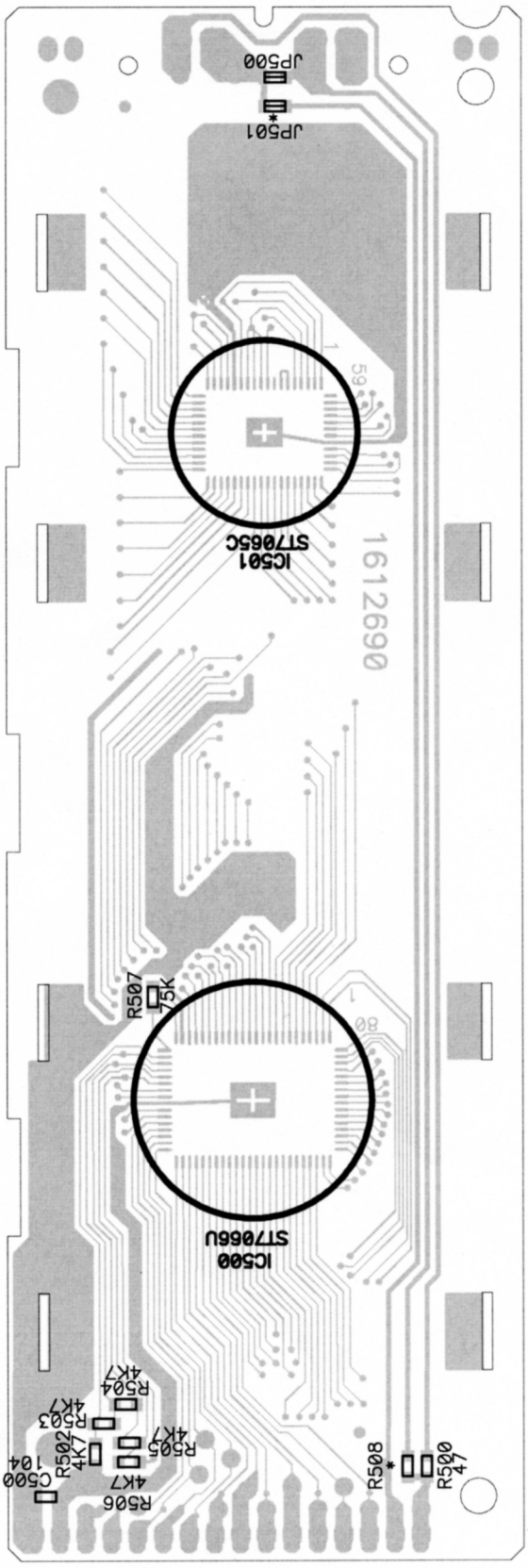
CONTROL PCB TOP VIEW



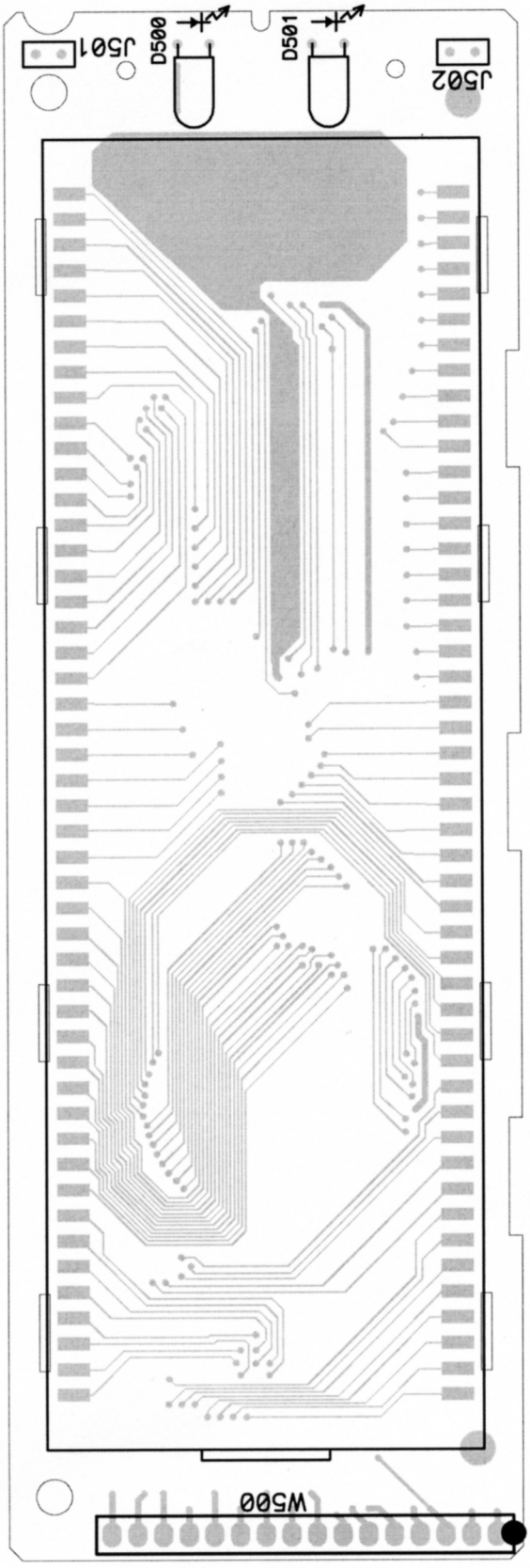
CONTROL PCB BOTTOM VIEW



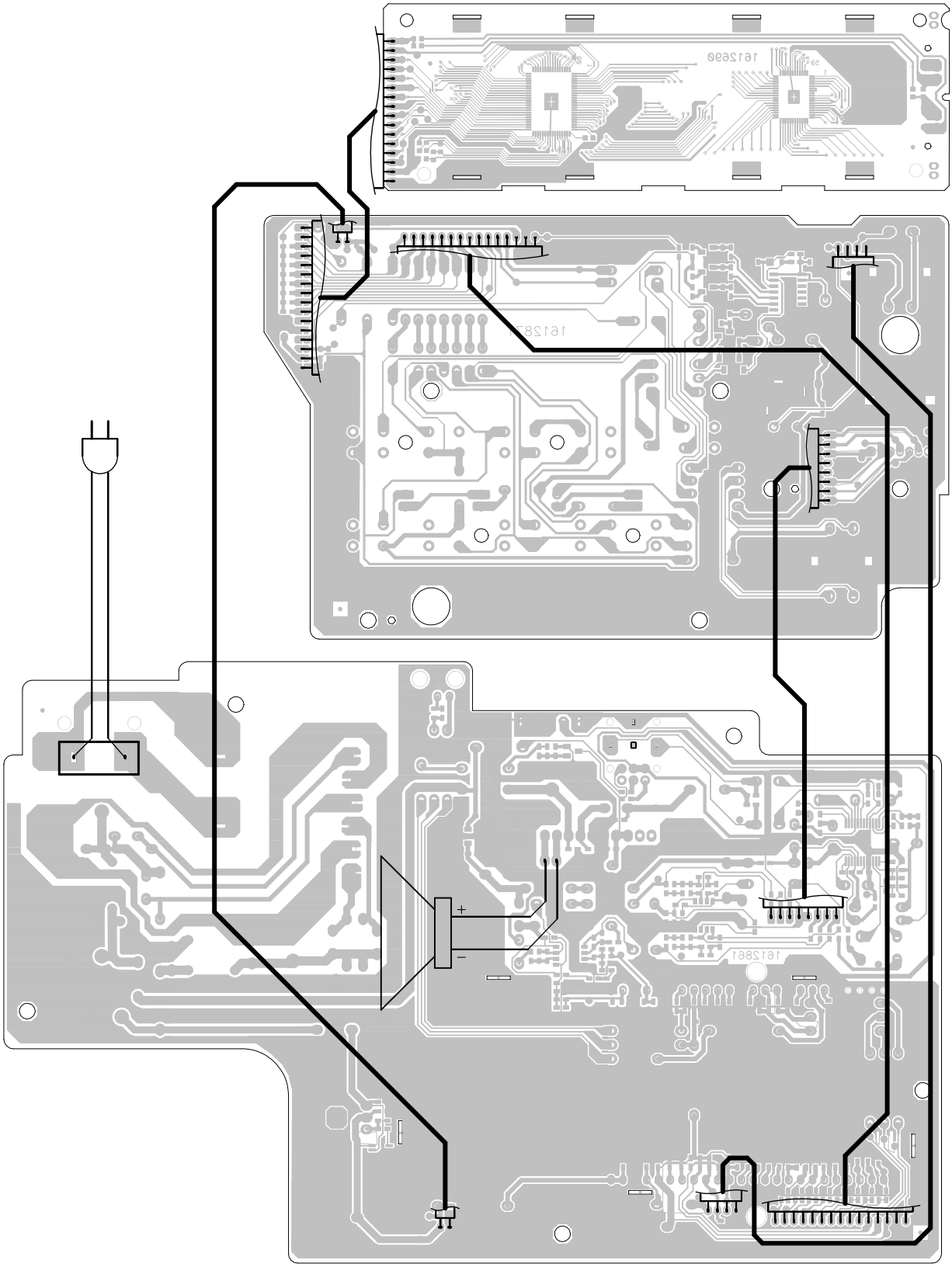
LCD PCB TOP VIEW



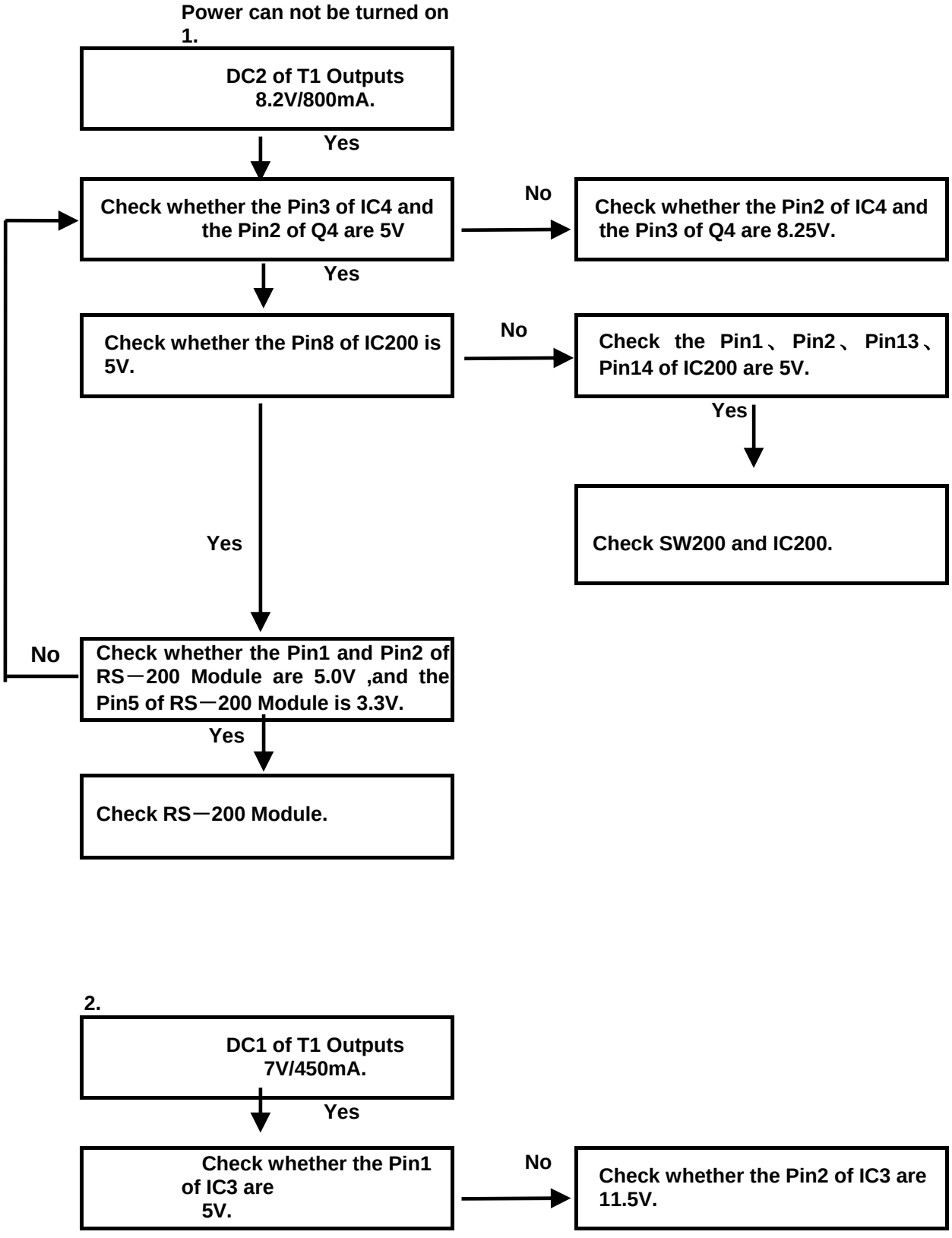
LCD PCB BOTTOM VIEW



Wiring Diagram



TROUBLESHOOTING FLOW CHART


Power can not be turned on
1.
DC2 of T1 Outputs 8.2V/800mA.
Yes
Check whether the Pin3 of IC4 and the Pin2 of Q4 are 5V
No
Check whether the Pin2 of IC4 and the Pin3 of Q4 are 8.25V.
Yes
Check whether the Pin8 of IC200 is 5V.
No
Check the Pin1、Pin2、Pin13、Pin14 of IC200 are 5V.
Yes
Check SW200 and IC200.
Yes
No
Check whether the Pin1 and Pin2 of RS－200 Module are 5.0V ,and the Pin5 of RS－200 Module is 3.3V.
Yes
Check RS－200 Module.
2.
DC1 of T1 Outputs 7V/450mA.
Yes
Check whether the Pin1 of IC3 are 5V.
No
Check whether the Pin2 of IC3 are 11.5V.

ELECTRICAL PARTS LIST

DDR-3/RD6

Ref No	Part No.	Description	Q'ty	Remark
1	1000625	CH LSI ST7066U-OE-B	1	IC 500,
2	1013540	IC TDA7266L	1	IC 7,
3	1013550	CH IC ST7065C (DICE)	1	IC 501,
4	1013661	CH IC NJM4580M	2	IC 1,2,
5	1013670	CH IC TA2120FN	1	IC 5,
6	1013710	CH IC H7805AMSOT-89	1	IC 3,
7	1013750	CH IC XC62EP5002MR	1	IC 4,
8	1013860	CH IC 74HC393D	1	IC 200,
9	1020240	CH TR 2SC1623 L6	7	Q 5,200-205,
10	1020490	TR 2SA1012 TO-220	1	Q 4,
11	1040020T	DIODE 1N4148-T	1	D 200,
12	1041030T	DIODE 1N4002-T(A-405)	5	D 1-5,
13	1046010	CH DIODE RLS4148	1	D 201,
14	1046210	DIODE TOTX141L	1	JK 1,
15	1050340	LED RED 3φ 25344HTS-B	1	LED204,
16	1059060	LED ORG 3mm 45E4YL28TS-B	6	LED200-203,500,501,
17	1150171	TOROID COIL 0.6mH	2	L 1,2,
18	1315626	R-VR 100KBx2 RV142B-40E1	1	VR 200,
19	1600600	LCD DPR-5	1	
20	1612690	PCB D DPR-2	1	
21	1612861	PCB A DDR-3	1	
22	1612871	PCB C DDR-3	1	
23	1620731	SP.3" 8Ω 7W	1	
24	1630340	SLIDE SW. 1P2C(H)	1	SW 1,
25	1631630	TACK SW.130□30gf 5mm	10	| SW 200-209,
26	1640230	JACK HP MSJ-035-08D PBT	1	JK 2,
27	1646040	AC SOCKET HJC-037P	1	JK 3,
28	1701002	CNT BASE 2x2P	1	CON4,
29	1701004	CNT BASE 2x4P	1	CON2,
30	170100F	CNT BASE 2x15P	1	CON1,
31	170122G	CNT BASE 2x16P	1	W 500,
32	170125Q	CNT BASE 2.54x25P	2	MODEL1A
33	1704540	W/ASS'Y 130(2x2P)	1	CON201,
34	1704620	W/ASS'Y 150(2+4P)	1	CON203,
35	1704630	W/ASS'Y 150(2+15P)	1	CON204,
36	1704680	W/ASS'Y 150(2+8P)	1	CON3,
37	1704710	W/ASS'Y 100(2+8P)	1	CON202,
38	1720320	TRAN. 230V DC:8.2V 800mA	1	T 1,
39	1730110	ROTARY ENCODE	1	SW 210,
40	1730111	ROTARY ENCODE	1	VR 201,
41	1740013	IR RECEIVER PNA4612M	1	IR 200,
42	1900360	W/SPK 200(6+2P)	1	SP 1,
43	1900471	M/B RS-200IR-4353(SG)1.5	1	MODEL1
44	4110364CT	CC 103Z 50V F	8	C 63-65,78,82,87,88,92
45	4410560T	EL 105M 50V 4x7	3	C 53,54,94,
46	4422561T	EL 225M 50V 5x11	3	C 9,40,73,
47	4447540	EL 475M 25V 4x7	2	C 201,205,
48	4410632T	EL 106M 16V 5x11	3	C 56,57,74,

DDR-3/RD6

Ref No	Part No.	Description	Q'ty	Remark
49	4447621T	EL 476M 10V 5x11(L.L.)	4	C 18,20,37,86,
50	4447630T	EL 476M 16V 5x11	1	C 98,
51	4410721T	EL 107M 10V 5x11L	1	C 29,
52	4422730T	EL 227M 16V 8x11	2	C 76,77,
53	4447721T	EL 477M 10V 8x12	2	C 52,70,
54	4433890	EL 338M 16V 13x25(5)	3	C 66,68,89,
55	4900023	EL 228M 25V 13x25 105℃	2	C 90,96,
56	5010101	CH CC 101J 50V NPO-C	9	C 1-8,69,
57	5010261	CH CC 102K 50V X7R-C	9	C 44,46-48,58,59,104, 202,203,
58	5010361	CH CC 103K 50V X7R-C	6	C 17,19,91,100,103,200
59	5010446	CH CC 104Z 25V F-C	22	C 25,30,32-34,38,45,49 ,50,55,60,62,67,79, 81,83-85,95,99,121, 204,
60	5010451	CH CC 104K 16V R-C	1	C 71,
61	5010471	CH CC 104Z 25V Y5V-C	1	C 500,
62	5010557	CH CC 105Z 10V F-C	2	C 206,207,
63	5015261	CH CC 152K 50V X7R-C	1	C 97,
64	5022101	CH CC 221J 50V NPO-C	3	C 22,39,105,
65	5022261	CH CC 222K 50V X7R-C	6	C 11-13,35,41,43,
66	5022365	CH CC 223Z 50V Y5V-C	2	C 51,118,
67	5022478	CH CC 224K 10V X7R-C	1	C 61,
68	6000724T	RD 1/16W 100J-T	1	R 43,
69	6000726T	RD 1/16W 150J-T	2	R 9,19,
70	6000728T	RD 1/16W 220J-T	2	R 211,212,
71	6000733T	RD 1/16W 560J-T	1	R 227,
72	6000740T	RD 1/16W 2K2J-T	8	R 213-220,
73	6100108	CH RD 1/16W 4.7J-C	2	R 48,49,
74	6100123	CH RD 1/16W 82J-C	1	R 224,
75	6100124	CH RD 1/16W 100J-C	12	R 11-18,30,41,42,59,
76	6100127	CH RD 1/16W 180J-C	1	R 223,
77	6100130	CH RD 1/16W 330J-C	3	R 54,221,238,
78	6100136	CH RD 1/16W 1KJ-C	2	R 61,222,
79	6100142	CH RD 1/16W 3.3KJ-C	7	R 20,22,25,29,33,34, 229,
80	6100143	CH RD 1/16W 3.9KJ-C	4	R 6,7,31,32,
81	6100144	CH RD 1/16W 4.7KJ-C	8	R 231,234,235,502-506,
82	6100146	CH RD 1/16W 6.8KJ-C	1	R 68,
83	6100148	CH RD 1/16W 10KJ-C	21	R 1-3,8,10,24,26,35-37 ,40,44-46,71,210,228 ,230,232,233,236,
84	6100152	CH RD 1/16W 22KJ-C	7	R 21,27,51,52,66,69,70
85	6100154	CH RD 1/16W 33KJ-C	2	R 23,28,
86	6100156	CH RD 1/16W 47KJ-C	6	R 4,5,38,39,72,73,
87	610015G	CH RD 1/16W 75KJ-C	1	R 507,
88	6100160	CH RD 1/16W 100KJ-C	12	R 57,58,201-208,225, 237,
89	6100168	CH RD 1/16W 470KJ-C	1	R 226,
90	6100172	CH RD 1/16W 1MJ-C	1	R 75,

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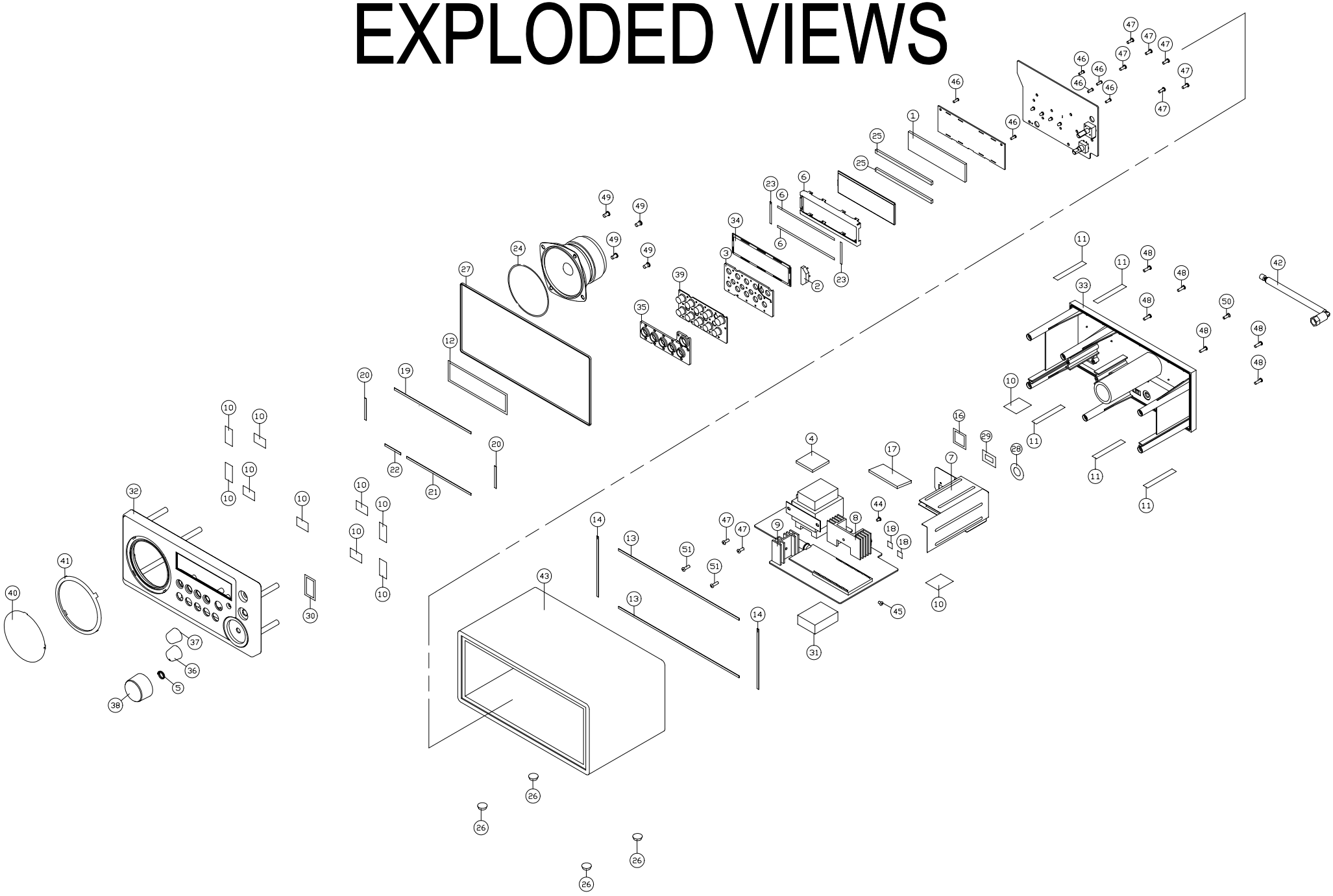
Ref No	Part No.	Description	Q'ty	Remark
91	6100194	CH RD 1/16W OJ-C	10	JP 3,6,8,9,42,203,500, R67,R209,R500,
92	8000010	W/JUMP 5(10)0.6mm	5	JP 37,38,46,204,205,
93	8000030	W/JUMP 7.5(10)0.6mm	10	JP 1,4,11,28,36,43-45, 202,215,
94	8000040	W/JUMP 10(10)0.6mm	21	JP 5,18,24,26,27,29,30, 33-35,41,201,206-211 ,213,214,226,
95	8000050	W/JUMP 12.5(10).6mm	13	JP 2,212,216-225,227,
96	8000090	W/JUMP 15(10)0.6mm	13	JP 10,12-17,19-23,40,
97	8261210	W/PVC 80(3+3)BLK	1	GND1,
98	8510030	W/TIES 300mm	1	

MECHANICAL PARTS LIST

DDR-3/RD6

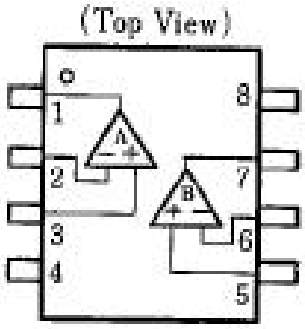
Ref No	PART NO.	DESCRIPTION	Q'TY	DWG NO	REMARK
1	20K4000	LCD LIGHT LENS	1	A4-RD2-04A	
2	20K4020	LED COVER	1	A4-RD2-11A	
3	20K8000	PUSH KEY HOLDER	1	A3-DDR3-10	
4	2185090	SHIELD PLATE (B)	1		
5	21B1110	ROTARY KNOB RING	1		VOL KNOB
6	21K4000	LCD HOLDER	1	A3-RD2-08A	
7	21K8000	GROUND PLATE	1	A3-DDR3-18	
8	21K8020	HEAT SINK	1	A4-DDR3-20	
9	21K8030	HEAT SINK-1	1	A4-DDR3-21	
10	2256000	P.C.B. HEMELON	11		F/Cx9 B/Cx2
11	22K8000	HEMELON	5	A4-DDR3-27	B/C BOSS
12	23K4000	PVC FLIM	1	A4-RD2-17A	
13	23K8010	WOOD CASE EVA(U/D)	2	A4-DDR3-22	
14	23K8020	WOOD CASE EVA(R/L)	2	A4-DDR3-23	
15	23K8030	LCD HOLDER NEP	2	A4-DDR3-25	
16	23K8040	EVA SPACER(A)	1	A4-DDR3-31	B/C DAI
17	23K8050	EVA SPACER(B)	1	A4-DDR3-29	
18	23K8060	EVA SPACER(C)	2	A4-DDR3-28	H/P/DAI
19	23K8070	NEP SPACER(A)	1	A4-DDR3-26	F/C KEY
20	23K8080	NEP SPACER(B)	2	A4-DDR3-26	F/C KEY
21	23K8090	NEP SPACER(C)	1		F/C KEY
22	23K8100	NEP SPACER(D)	1	A4-DDR3-26	
23	23K8110	NEP SPACER(E)	2	A4-DDR3-26	LCD HOLDERx2
24	24J9090	SPK COVER & CAB. PACKING	1		
25	24K4000	CONDUCT RUBBER	2	A3-RD2-06A	
26	24K6000	FOOT RUBBER	4		
27	24K8010	FRONT PACKING	1	A3-DDR3-12	
28	24K8030	E/P PACKING	1	A4-DDR3-14	
29	24K8040	SWICTH PACKING	1	A4-DDR3-15	
30	24K8050	IR PACKING	1	A4-DDR3-17	
31	24K8060	A PCB RUBBER	1	A4-DDR3-24	
32	301K801A	FRONT CABINET	1	A1-DDR3-02	
33	303K801	BACK COVER	1	A1-DDR3-03	
34	305K801	LCD WINDOW	1	A4-DDR3-05	
35	306K801	PUSH KEY LENS	1	A3-DDR3-08	
36	310K801	TONE KNOB	1		
37	311K801	VOL KNOB	1	A4-DDR3-07	
38	312K801	TUNING KNOB	1	A4-DDR3-06	
39	313K801	PUSH KEY RUBBER	1	A3-DDR3-09	
40	343K801	SPEAKER GRILL	1	A4-DDR3-16	
41	344K801	SPK ORNAMENT	1	A4-DDR3-04	
42	360K801	ROD ANT	1		
43	372K601	WOOD CASE	1	A1-WR1-23A	
44	9003042	SCREW JMP 3x4 (NI)	2		FOR 散熱片
45	9003062	SCREW JMP 3x6(NI)	2		SINK
46	9102071	SCREW PTP 2.6x7 NI	6		LCD PCBx2/C PCBx4
47	9103082	SCREW PTP 3x8(NI)	8		ACx2/CPCBx6
48	9103102	SCREW PTP 3X10(NI)	6		CABINETx6
49	9104072	SCREW PTP 4x7 NI	4		SPK
50	9113082	SCREW PTF M3x8(NI)	1		FO.
51	9153102	SCREW PTPW 3x10(NI)	2		TRANx2

EXPLODED VIEWS

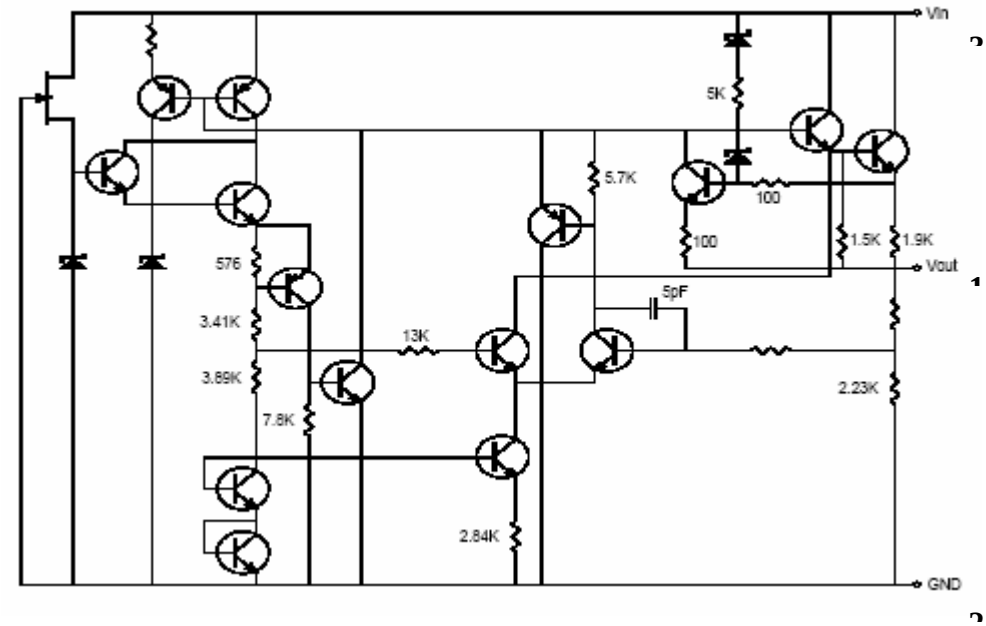


IC CIRCUIT BLOCK DIAGRAM

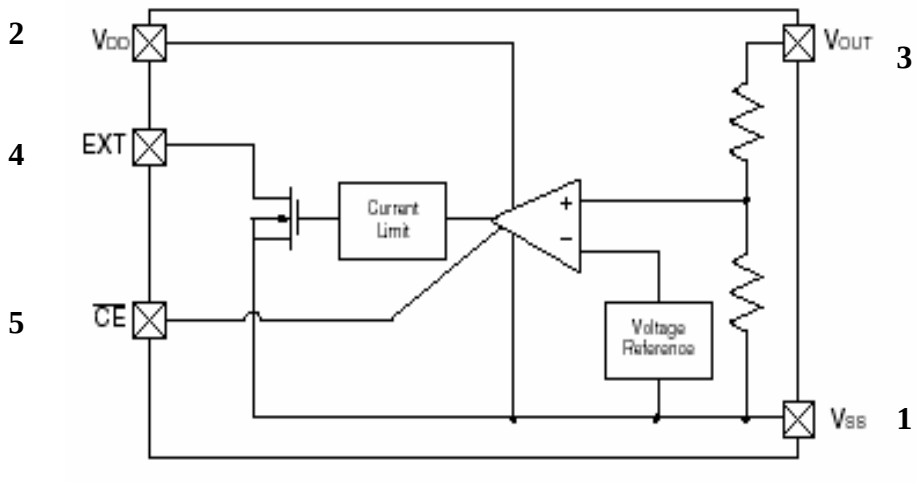
1. IC1、IC2 – NJM4580M



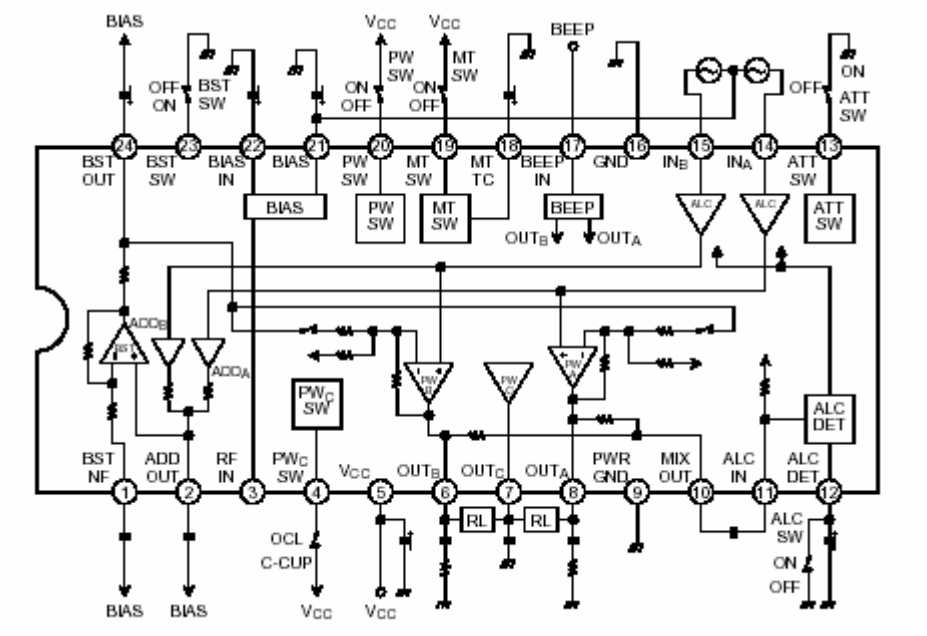
2. IC3 – H7805AM



3. IC4– XC62EP5002MR



4. IC5 – TA2120FN



IC AND TRANSISTOR VOLTAGE CHART

IC200 – 74HC393D

NO LIGHT			
PIN	**FM**	**DAB**	**SB**
1	4.97	4.97	4.97
2	4.97	4.97	4.97
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	4.97	4.97	4.97
9	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
13	4.92	4.92	4.92
14	4.97	4.97	4.97

IC7 – TDA7266L

PIN	FM	DAB	SB
1	0	0	0
2	0	0	0
3	5.1	5.1	0
4	5.1	5.1	0
5	0	0	0
6	0	0	0
7	1.55	1.55	0
8	10.7	10.7	11.35
9	5.3	5.3	0
10	5.4	5.4	0

IC3 – H7805AM

PIN	FM	DAB	SB
1	10.9	10.9	11.3
2	0	0	0
3	5.0	5.0	5.0

IC4 – XC62EP5002MR

PIN	FM	DAB	SB
1	0	0	0
2	7.85	7.85	7.95
3	5.0	5.0	5.0
4	5.85	5.85	6.0
5	0	0	0

IC1 – NJM4580M

PIN	FM	DAB	SB
1	2.25	2.25	2.25
2	2.21	2.21	2.21
3	2.21	2.21	2.21
4	0	0	0
5	2.21	2.21	2.21
6	2.21	2.21	2.21
7	2.26	2.26	2.26
8	4.44	4.44	4.44

IC2 – NJM4580M

PIN	FM	DAB	SB
1	2.17	2.17	2.17
2	2.17	2.17	2.17
3	2.17	2.17	2.17
4	0	0	0
5	2.17	2.17	2.17
6	2.17	2.17	2.17
7	2.17	2.17	2.17
8	4.45	4.45	4.45

IC5 – TA2120FN

PIN	FM	DAB	SB
1	2.1	2.1	2.1
2	1.9	1.9	1.9
3	0	0	0
4	4.45	4.45	4.45
5	4.45	4.45	4.45
6	1.9	1.9	1.9
7	0.6	0.6	0.6
8	1.9	1.9	1.9
9	0	0	0
10	1.9	1.9	1.9
11	1.9	1.9	1.9
12	0	0	0
13	1.15	1.15	1.15
14	1.9	1.9	1.9
15	1.9	1.9	1.9
16	0	0	0
17	0	0	0
18	1.3	1.3	1.3
19	1.3	1.3	1.3
20	4.4	4.4	4.4
21	1.9	1.9	1.9
22	1.9	1.9	1.9
23	1.15	1.15	1.15
24	1.9	1.9	1.9

PS：

SB：Stand-By mode

MODUL1–RS200

PIN	FM	DAB	SB
1	5.0	5.0	5.0
2	5.0	5.0	5.0
3	0	0	0
4	4.95	4.95	4.95
5	3.3	3.3	3.3
6	3.3	3.3	3.3
7	△2.65	△2.65	△2.65
8	0	0	0
9	3.3	3.3	3.3
10	3.3	3.3	3.3
11	3.3	3.3	3.3
12	3.3	3.3	3.3
13	3.3	3.3	3.3
14	3.3	3.3	3.3
15	3.3	3.3	3.3
16	3	3	3
17	＊1	＊1	＊1
18	＊1	＊1	＊1
19	△2.5	△2.5	△2.5
20	＊1	＊1	＊1
21	＊1	＊1	＊1
22	＊1	＊1	＊1
23	＊1	＊1	＊1
24	＊1	＊1	＊1
25	0	0	0

PIN	FM	DAB	SB
26	0	0	0
27	3.3	3.3	3.3
28	＊1	＊1	＊1
29	＊1	＊1	＊1
30	3.3	3.3	3.3
31	0	0	0
32	0	0	0
33	0	0	3.3
34	3.3	3.3	3.3
35	0	0	0
36	0	0	0
37	△3.0	△3.0	△3.0
38	3.3	0	3.3
39	0	0	0
40	1.6	1.6	1.6
41	1.65	1.65	1.65
42	1.65	1.65	1.65
43	1.85	＊1	0
44	1.6	1.6	0
45	0	0	0
46	0	0	0
47	0.38	0.38	0.38
48	0	0	0
49	0.38	0.38	0.38
50	0	0	0

PS：

＊1： 0.3~2.5V

△： ±0.5V

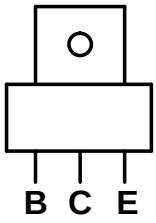
Transistor

	NO LIGHT			
	PIN	**FM**	**DAB**	Q4
Q200	B	0.7	0.7	0.34
	C	0.1	0.1	2.2
	E	0	0	0
Q201	B	0	0	0.68
	C	3.38	3.38	0.065
	E	0	0	0
Q202	B	0	0	0
	C	2.18	2.18	2.18
	E	0	0	0
Q203	B	0	0	0
	C	2.18	2.18	2.18
	E	0	0	0
Q204	B	0	0	0
	C	2.18	2.18	2.18
	E	0	0	0
Q205	B	0.18	0.18	0.045
	C	4.92	4.92	4.92
	E	0	0	0

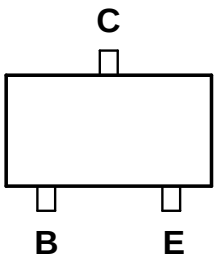
	PIN	**FM**	**DAB**	**SB**
Q4	B	7.15	7.15	7.3
	C	5.0	5.0	5.0
	E	7.85	7.85	7.95
Q5	B	0	0	0.7
	C	5.1	5.1	0
	E	0	0	0

Semiconductor Lead Identification

Transistors



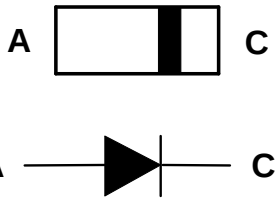
2SA1012 TO-220



2SC1623

(E:Emitter C:Collector B:Base S:Source G:Gate D:Drain)

Diodes



MM4148

(A:Anode C:Cathode)

Schematic Diagram